CLAIM AMENDMENTS

1. (canceled)

2. (currently amended) The method according to claim 16 [[,]] wherein said channel coefficients to be calculated are comprised between a first known channel coefficient, of abscissa A, corresponding to a last pilot symbol of a current slot (L) and a second known channel coefficient, of abscissa B, corresponding to a first pilot symbol of a slot (L + 1) subsequent to said current slot, ~~being additionally known~~ a third channel coefficient [[,]] of abscissa A-1 [[,]] being on the left-hand of said first channel coefficient of abscissa A, and the computation of said channel coefficients [[is]] being carried out ~~through~~ by the following steps:

a) ~~repeatedly applying in a recursive manner said interpolation algorithm in the interval defined by said known channel coefficients of abscissa A and B, by~~ carrying out a first iteration in an interval defined by the known channel coefficients of abscissa A1 and B in which a first intermediate coefficient ~~(of abscissa C)~~ is calculated [[;]] and [[by]] performing [[the]] subsequent iterations ~~of the same algorithm~~ in sub-intervals [[,]] defined each time on the left-hand by said known channel coefficient of abscissa A and on the right-hand by the intermediate coefficient [[,]] and calculated in the preceding iteration, until the abscissa point A + 1 is reached and computed;

b) searching, by increasing abscissas, for a first point, still to be calculated, on the right-hand of the last intermediate coefficient calculated; defining as extremes of a new ~~application~~ interval ~~of said interpolation algorithm,~~ having on the left side the first known left-hand point and on the right side the first known right-hand point with respect to said point still to be calculated; and further ~~applying, in a~~ recursively performing further iterations of the method in ~~manner, said interpolation algorithm to~~ said new interval [[,]] by carrying out subsequent iteration ~~of the same algorithm~~ in sub-intervals defined from time to time by the intermediate coefficient calculated in the preceding iteration, until the point immediately adjacent to the left-hand extreme of said new interval is reached and calculated; and

c) repeating step b) until the channel coefficient associated to the value of abscissa B-1 is calculated.

3. (currently amended) The method according to claim 2 [[,]] wherein each slot contains three pilot symbols (0, 1, 2), said first known channel coefficient of abscissa A is the coefficient $C(2) = C_I(2) + C_Q(2)$ corresponding to the last pilot symbol (2) of the current slot (L), said second known channel coefficient of abscissa B is the coefficient $C(10) =$ [[$C_R(10)$]] $C_I(10) + jC_Q(10)$ corresponding to the first pilot symbol (10) of a subsequent slot (L + 1), and said third known channel coefficient of abscissa A-1 is the coefficient $C(1) =$ [[$C_R(1)$]] $C_I(1) + C_Q(1)$ corresponding to the last but one pilot symbol (1) of the current

slot (L) and the computation of channel coefficients C(k) = [[$C_R(k)$]] $\underline{C_I(k)}$ + $\underline{j}C_Q(k)$, with k = 3..9, is performed according to the following sequence:

$$C_I(6) = [C_I(2) + C_I(10)]/2;\ C_Q(6) = [C_Q(2) + C_Q(10)]/2;$$
$$C_I(4) = [C_I(2) + C_I(6)]/2\ ;\ C_Q(4) = [C_Q(2) + C_Q(6)]/2;$$
$$C_I(3) = [C_I(2) + C_I(4)]/2\ ;\ C_Q(3) = [C_Q(2) + C_Q(4)]/2;$$
$$C_I(5) = [C_I(4) + C_I(6)]/2\ ;\ C_Q(5) = [C_Q(4) + C_Q(6)]/2;$$
$$C_I(8) = [C_I(6) + C_I(10)]/2;\ C_Q(8) = (C_Q(6) + C_Q(10)]/2;$$
$$C_I(7) = [C_I(6) + C_I(8)]/2\ ;\ C_Q(7) = [C_Q(6) + C_Q(8)]/2;$$
$$C_I(9) = [C_I(8) + C_I(10)]/2;\ C_Q(9) = [C_Q(8) + C_Q(10)]/2.$$

4. (currently amended) <u>The</u> method according to claim 2 [[,]] wherein each slot contains four pilot symbols (0, 1, 2, 3), said first known channel coefficient of abscissa A is the coefficient C(3) = $C_I(3)$ + $\underline{j}C_Q(3)$ corresponding to the last pilot symbol (3) of the current slot (L), said second known channel coefficient of abscissa B is the coefficient ~~, original~~ C(10) = $C_I(10)$ + $C_Q(10)$ corresponding to the first pilot symbol (10) of a subsequent slot (L + 1), and said third known channel coefficient of abscissa A-1 is the coefficient C(2) = $C_I(2)$ + $C_Q(2)$ corresponding to the last but one pilot symbol (2) of the current slot (L), and the computation of the channel coefficients C(k) = $C_I(k)$ + $\underline{j}C_Q(k)$, with k = 4..9, is performed according to the following sequence:

$$C_I(6) = [C_I(2) + C_I(10)]/2;\ C_Q(6) = [C_Q(2) + C_Q(10)]/2;$$
$$C_I(4) = [C_I(2) + C_I(6)]/2\ ;\ C_Q(4) = [C_Q(2) + C_Q(6)]/2;$$

$$C_I(5) = [C_I(4) + C_I(6)]/2 \;;\; C_Q(5) = [C_Q(4) + C_Q(6)]/2;$$
$$C_I(8) = [C_I(6) + C_I(10)]/2; \; C_Q(8) = [C_Q(6) + C_Q(10)]/2;$$
$$C_I(7) = [C_I(6) + C_I(8)]/2 \;;\; C_Q(7) = [C_Q(6) + C_Q(8)]/2;$$
$$C_I(9) = [C_I(8) + C_I(10)]/2; \; C_Q(9) = [C_Q(8) + C_Q(10)]/2.$$

5. (currently amended) The method according to claim 2 [[,]] wherein each slot contains five pilot symbols (0, 1, 2, 3, 4), said first known channel coefficient of abscissa A is the coefficient ~~, original~~ $C(4) = C_I(4) + jC_Q(4)$ corresponding to the last pilot symbol (4) of current slot (L), said second known channel coefficient of abscissa B is the coefficient $C(10) = C_I(10) + jC_Q(10)$ corresponding to the first pilot symbol (10) of a subsequent slot (L + 1), and said third known channel coefficient of abscissa A-1 is the coefficient $C(3) = C_I(3) + jC_Q(3)$ corresponding to the last but one pilot symbol (3) of the current slot (L), and the computation of the channel coefficients $C(k) = C_I(k) + jC_Q(k)$, with k = 5..9, is performed according to following sequence:

$$C_I(7) = [C_I(4) + C_I(10)]/2; \; C_Q(7) = [C_Q(4) + C_Q(10)]/2;$$
$$C_I(5) = [C_I(3) + C_I(7)]/2 \;;\; C_Q(5) = [C_Q(3) + C_Q(7)]/2;$$
$$C_I(6) = [C_I(5) + C_I(7)]/2 \;;\; C_Q(6) = [C_Q(5) + C_Q(7)]/2;$$
$$C_I(8) = [C_I(6) + C_I(10)]/2; \; C_Q(8) = [C_Q(6) + C_Q(10)]/2;$$
$$C_I(9) = [C_I(8) + C_I(10)]/2; \; C_Q(9) = [C_Q(8) + C_Q(10)]/2.$$

6. (currently amended) The method according to claim 2 [[,]] wherein each slot contains six pilot symbols (0, 1, 2, 3, 4,

5), said first known channel coefficient of abscissa A is the coefficient $C(5) = C_I(5) + jC_Q(5)$ corresponding to the last pilot symbol (5) of the current slot (L), said second known channel coefficient of abscissa B is the coefficient $C(10) = C_I(10) + jC_Q(10)$ corresponding to the first pilot symbol (10) of a subsequent slot (L + 1), and said third known channel coefficient of abscissa A-1is the coefficient $C(4) = C_I(4) + jC_Q(4)$ corresponding to the last but one pilot symbol (4) of the current slot (L), and the computation of the channel coefficients $C(k) = C_I(k) + jC_Q(k)$, with $k = 6..9$, is performed according to following sequence:

$$C_I(7) = [C_I(4) + C_I(10)]/2; \quad C_Q(7) = [C_Q(4) + C_Q(10))/2;$$
$$C_I(6) = [C_I(5) + C_I(7)]/2\ ; \quad C_Q(6) = [C_Q(5) + C_Q(7)]/2;$$
$$C_I(8) = [C_I(6) + C_I(10)]/2; \quad C_Q(8) = [C_Q(6) + C_Q(10)]/2;$$
$$C_I(9) = [C_I(8) + C_I(10)]/2; \quad C_Q(9) = [C_Q(8) + C_Q(10))/2.$$

7. (currently amended) The method according to claim 2 [[,]] wherein each slot contains seven pilot symbols (0, 1, 2, 3, 4, 5, 6), said first known channel coefficient of abscissa A is the coefficient $C(6) = C_I(6) + jC_Q(6)$ corresponding to the last pilot symbol (6) of the current slot (L), said second known channel coefficient is the coefficient $C(10) = C_I(10) + jC_Q(10)$ corresponding to the first pilot symbol (10) of a subsequent slot (L + 1), and said third known channel coefficient of abscissa A-1 is the coefficient $C(5) = C_I(5) + jC_Q(5)$ corresponding to the last but one pilot symbol (5) of the current slot (L), and the

computation of the channel coefficients $C(k) = C_I(k) + jC_Q(k)$, with $k = 7..9$, is performed following the sequence:

$$C_I(8) = [C_I(6) + C_I(10)]/2; \quad C_Q(8) = [C_Q(6) + C_Q(10)]/2;$$
$$C_I(7) = [C_I(6) + C_I(8)]/2 \; ; \quad C_Q(7) = [C_Q(6) + C_Q(8)]/2;$$
$$C_I(9) = [C_I(8) + C_I(10)]/2; \quad C_Q(9) = [C_Q(8) + C_Q(10)]/2.$$

8. (currently amended) The method according to claim 2, wherein each slot contains eight pilot symbols (0, 1, 2, 3, 4, 5, 6, 7), said first known channel coefficient of abscissa A is the coefficient $C(7) = C_I(7) + jC_Q(7)$ corresponding to the last pilot symbol (7) of the current slot (L), said second known channel coefficient of abscissa B is the coefficient $C(10) = C_I(10) + jC_Q(10)$ corresponding to the first pilot symbol (10) of a subsequent slot (L + 1), and said third known channel coefficient of abscissa A-1 is the coefficient $C(6) = C_I(6) + jC_Q(6)$ corresponding to the last but one pilot symbol (6) of the current slot (L), and the computation of the channel coefficients $C(k) = C_I(k) + jC_Q(k)$, with $k = 8, 9$, is performed according to the sequence:

$$C_I(8) = [C_I(6) + C_I(10)]/2; \quad C_Q(8) = [C_Q(6) + C_Q(10)]/2;$$
$$C_I(9) = [C_I(8) + C_I(10)]/2; \quad C_Q(9) = [C_Q(8) + C_Q(10)]/2.$$

9. (currently amended) The method according to claim 17 [[,]] wherein said channel coefficients to be calculated are comprised between a first known channel coefficient of abscissa A, corresponding to a last pilot symbol of a current slot (L), and a

second known channel coefficient of abscissa B, corresponding to a first pilot symbol of a slot (L + 1) subsequent to said current slot, ~~being additionally known~~ a third channel coefficient of abscissa B + 1 [[,]] being on the right hand of said first channel coefficient of abscissa B, and the computation of said channel coefficients is performed ~~through~~ by the steps of:

a) ~~repeatedly applying, in a recursive manner, said interpolation algorithm in the interval defined by said known channel coefficients of abscissa A and B, by~~ carrying out a first iteration in the interval defined by the known channel coefficients of abscissa A and B in which a first intermediate coefficient ~~(of abscissa C)~~ is calculated and [[by]] performing subsequent iterations ~~of the same algorithm~~ in sub-intervals defined from time to time on the right-hand by said known channel coefficient of abscissa B and on the left-hand by the intermediate coefficient ~~derived~~ calculated in the preceding iteration, until the abscissa point B - 1 is reached and calculated;

b) searching, by decreasing abscissas, for a first point still to be calculated on the left-hand of the last intermediate coefficient calculated; defining ~~, as extremes of~~ a new ~~application~~ interval ~~of said interpolation algorithm,~~ having on the left side the first known left hand point and on the right side the first known right-hand point with respect to said point still to be calculated; and ~~further applying, in a~~ recursively calculating further iterations of the method in ~~manner, said interpolation algorithm on~~ said new interval [[,]] by carrying out subsequent

iterations ~~of the same algorithm~~ in sub-intervals defined from time to time by the right hand extreme of said new interval and by a left hand extreme formed by the intermediate coefficient derived in the previous iteration, until the point immediately adjacent to the right hand extreme of said new interval is reached and calculated; and

c) repeating step b) until the channel coefficient associated to the value of abscissa A + 1 is calculated.

10. (currently amended) The method according to claim 16, wherein said channel coefficients to be calculated are comprised between two known left-hand channel coefficients (A - 1, A) [[,]] corresponding to the last two pilot symbols of a current slot (L), and two known right-hand channel coefficients [[,]] (B, B + 1) corresponding to the first two pilot symbols of a slot (L + 1) subsequent to said current slot, and the computation of said channel coefficients is performed by applying the first time ~~said interpolation algorithm~~ iterative method of claim 16 for calculating an intermediate coefficient, thus dividing into two sub-intervals the interval comprised between said known left-hand channel coefficients and said known right hand channel coefficients, and by subsequently applying [[,]] in parallel [[,]] to said ~~sub-intervals said interpolation algorithm~~ the iterative method of claim 16 for computing the remaining channel coefficients comprised in each of said sub-intervals.

11. (currently amended) The method according to claim 16 [[,]] wherein at least one known point of said first or second extreme is a point which has been obtained through a linear combination of known channel coefficients.

12. (currently amended) The method according to claim 16 [[,]] wherein said communications network is a radio mobile telecommunications network of UMTS type.

13. (currently amended) A device for the estimation of the transfer function of a transmission channel in a receiving system for a telecommunications network, the device comprising:

a memory ~~(100) capable of~~ means for storing channel coefficients corresponding to a current slot (L) and at least one channel coefficient corresponding to a slot (L + 1) subsequent to said ~~, original~~ current slot (L);

interpolation means ~~(104, 106, 108, 110) capable of~~ for reading from said memory means ~~(100) a~~ first and [[a]] second operands [[,]] corresponding to known channel coefficients [[,]] and [[of]] for writing into said memory [[(100)]] means a value corresponding to the arithmetic average between said first and second operand, said value corresponding to a new channel coefficient;

[[a]]logic control ~~unit (102)~~ means for addressing in reading and writing (R/W) said memory [[(100)]] means and for controlling said interpolation means ~~(104, 106),~~ so as to perform

through individual interpolation operations [[,]] the computation and the storage into such memory [[(100)]] means of individual channel coefficients, ~~; characterized in that~~ said logic control ~~unit (102) carries. original~~ carrying out a series of interpolation operations according to the method described in claim 16.

14. (currently amended) A radio base station [[,]] of the type comprising a Rake receiver for receiving signals coming from mobile terminals [[,]] and equipped with a device for the estimation of the transfer function of a transmission channel through the computation of a plurality of channel coefficients, ~~characterized in that said~~ the estimation of the transfer function [[is]] being performed ~~. original~~ according to the method described in claim 16.

15. (currently amended) A mobile terminal [[,]] of the type comprising a receiver for the reception of signals coming from a radio base station [[,]] and equipped with a device for the estimation of the transfer function of a transmission channel through the computation of a plurality of channel coefficients, ~~characterized in that said~~ the estimation of the transfer function [[is]] being performed according to the method described in claim 16.

16. (new) An iterative method of estimating channel coefficients by interpolation between known channel coefficients,

the coefficients being identified by integer abscissa values on a time axis, the known coefficients comprising at least two coefficients with adjacent values $x-1$ and x at the left side of an interval and at least one coefficient with abscissa value y at the right of the interval, wherein one iteration of the method comprises

calculating an abscissa value as $z = \lfloor (x + y)/ 2 \rfloor$, and

calculating the coefficient with abscissa z as the arithmetic mean of the coefficients with abscissae values x and y, if $x + y$ is even, and as the arithmetic mean of the coefficients with abscissae values $x-1$ and y, if $x + y$ is odd, the coefficient with abscissa z constituting a known coefficient for any further iterations.

17. (new) An iterative method of estimating channel coefficients by interpolation between known channel coefficients, the coefficients being identified by integer abscissa values on a time axis, the known coefficients comprising at least one coefficient with abscissa value x at the left side of an interval and at least two coefficients with adjacent values y and $y + 1$ at the right of the interval wherein one iteration of the method comprises

calculating an abscissa value as $z = \lceil (x + y)/ 2 \rceil$, and

calculating the coefficient with abscissa z as the arithmetic mean of the coefficients with abscissae values x and y, if $x + y$ is even, and as the arithmetic mean of the coefficients

with abscissas values x and y + 1, if x + y is odd, the coefficient with abscissa z constituting a known coefficient for any further iterations.

18. (new) The method according to claim 17 wherein the channel coefficients to be calculated are comprised between two known left-hand channel coefficients (A - 1, A) corresponding to the last two pilot symbols of a current slot (L), and two known right-hand channel coefficients (B, B + 1) corresponding to the first two pilot symbols of a slot (L + 1) subsequent to the current slot, and the computation of the channel coefficients is performed by applying the first time iterative method of claim 16 for calculating an intermediate coefficient, thus dividing into two sub-intervals the interval comprised between the known left-hand channel coefficients and the known right hand channel coefficients, and by subsequently applying in parallel to the iterative method of claim 16 for computing the remaining channel coefficients comprised in each of the sub-intervals.

19. (new) A device for the estimation of the transfer function of a transmission channel in a receiving system for a telecommunications network, the device comprising:

a memory means for storing channel coefficients corresponding to a current slot (L) and at least one channel coefficient corresponding to a slot (L + 1) subsequent to the current slot (L);

interpolation means for reading from the memory means first and second operands corresponding to known channel coefficients and for writing into the memory means a value corresponding to the arithmetic average between the first and second operand, the value corresponding to a new channel coefficient;

logic control means for addressing in reading and writing (R/W) the memory means and for controlling the interpolation means so as to perform through individual interpolation operations the computation and the storage into such memory means of individual channel coefficients, the logic control carrying out a series of interpolation operations according to the method described in claim 17.

20. (new) A radio base station of the type comprising a Rake receiver for receiving signals coming from mobile terminals and equipped with a device for the estimation of the transfer function of a transmission channel through the computation of a plurality of channel coefficients, the estimation of the transfer function being performed according to the method described in claim 17.

21. (new) A mobile terminal of the type comprising a receiver for the reception of signals coming from a radio base station and equipped with a device for the estimation of the transfer function of a transmission channel through the computation

of a plurality of channel coefficients, the estimation of the transfer function being performed according to the method described in claim 17.